

# *ADAPTIVE IDLE SPEED CONTROL FOR A DIRECT INJECTED INTERNAL COMBUS- TION ENGINE*

## **Abstract**

The present invention provides a system and method of adaptively setting the idle speed of an internal combustion engine based on instantaneous power requirements of the engine. By adaptively setting engine idle speed based on instantaneous power requirements of the engine as well as the power requirements of any auxiliary devices, the noise and exhaust emissions of the engine may be reduced as well as improving fuel consumption efficiency. The engine's electronic control unit (ECU) is designed to regulate an idle speed controller based on current feedback received from sensors operationally connected to the engine as well as the various auxiliary devices. The ECU regulates the idle speed control such that the engine electronics are sufficiently energized to run the engine, but the engine idle speed is also set to a level that takes into account the instantaneous power requirements of the various system components and/or devices.